Volume 139 1984

FEBS

European Journal of Biochemistry

Managing Editors

Giorgio Bernardi (Paris), Lothar Jaenicke (Köln), Pierre Jollès (Paris), Claude Liébecq (Liège), *Chairman,* and Cees Veeger (Wageningen)

Editorial-Advisory Board

B. E. C. Banks (London)
L. D. Bergelson (Moskva)
A. Bernardi (Gif-sur-Yvette)
H. Bloemendal (Nijmegen)
E. M. Bradbury (Davis)
M. E. Buckingham (Paris)
E. Carafoli (Zürich)
A. Cornish-Bowden (Birmingham)
C. Crane-Robinson (Portsmouth)
K. Decker (Freiburg i.Br.)
J. Demaille (Montpellier)
H. Eisenberg (Rehovot)
F. Franěk (Praha)
G. Gerisch (Martinsried)
G. Gottschalk (Göttingen)
L. Heilmeyer (Bochum)
F. W. Hemming (Nottingham)
A. Henschen-Edman (Martinsried)
H. Hilz (Hamburg)
E. Hofmann (Leipzig)
F. Hofmann (Heidelberg)
F. Hucho (Berlin)
H. Jörnvall (Stockholm)
M. Ya. Karpeisky (Moskva)
M. Klingenberg (München)
C. G. Kurland (Uppsala)
J.-M. Lhoste (Orsay)
E. Lisowska (Wrocław)
M.-H. Loucheux-Lefebvre (Lille)
O. Lüderitz (Freiburg i.Br.)
M. Monsigny (Orléans)
K. Nierhaus (Berlin)
A. Paraf (Thiverval-Grignon)
B. Parthier (Halle)
I. Pecht (Rehovot)
G. Pettersson (Lund)
R. J. Planta (Amsterdam)
A. Prunell (Paris)
J. Rétey (Karlsruhe)
J. Ricard (Marseille)
E. Rickli (Bern)
M. C. Scrutton (London)
A. Sentenac (Saclay)
N. Sharon (Rehovot)
H. Sies (Düsseldorf)
H. D. Söling (Göttingen)
A. S. Spirin (Pushchino)
J. Stenflo (Malmö)
J. M. Tager (Amsterdam)
W. Tanner (Regensburg)
J. O. Thomas (Cambridge)
K. F. Tipton (Dublin)
D. R. Trentham (Philadelphia)
V. Ullrich (Konstanz)
K. van Dam (Amsterdam)
D. Vázquez (Madrid)
P. V. Vignais (Grenoble)
J. F. G. Vliegenthart (Utrecht)
K. von Figura (Münster)
M. Wikström (Helsinki)
M. Wilchek (Rehovot)
R. J. P. Williams (Oxford)
K. W. A. Wirtz (Utrecht)
A. V. Xavier (Lisboa)
W. Zillig (Martinsried)
H. Zuber (Zürich)

Published by Springer International

on behalf of the Federation of European Biochemical Societies

The exclusive copyright for all languages and countries, including the rights for photographic reproduction, electronic data base, video disks, or any other reproduction of text, figures, or tables from this journal, also in microform, is vested in the Federation of European Biochemical Societies.

The use of general descriptive names, trade names, trade marks, etc., in this publication, even if the former are not specifically identified, is not to be interpreted that such names are exempt from the relevant protective laws and regulations and may accordingly be used freely by anyone.

Springer Verlag · Berlin · Heidelberg · New York

Printers: Wiesbadener Graphische Betriebe GmbH, Wiesbaden

Printed in Germany

Copyright © by the Federation of European Biochemical Societies 1984

Volume 139 1984

Table of Contents

No. 1 1–200 issued on February 15, 1984
No. 2 201–424 issued on March 1, 1984
No. 3 425–682 issued on March 15, 1984

Corrections 682

Nucleic acids, protein synthesis, and molecular genetics

Changes in form of elongation factor 1 during germination of wheat seeds
G. A. Sacchi, G. Zocchi, and S. Cocucci 1–4

The effect of single base-pair mismatches on the duplex stability of d(T-A-T-T-A-A-T-A-T-C-A-A-G-T-T-G) · d(C-A-A-C-T-T-G-A-T-A-T-T-A-A-T-A)
N. Tibanyenda, S. H. De Bruin, C. A. G. Haasnoot, G. A. van der Marel, J. H. van Boom, and C. W. Hilbers 19–27

Interactions *in vivo* between III^{Glc} of the phospho*enol*pyruvate:sugar phosphotransferase system and the glycerol and maltose uptake systems of *Salmonella typhimurium*
S. O. Nelson and P. W. Postma 29–34

The arrangement of ribosomal RNA genes in *Schistosoma mansoni*. Identification of polymorphic structural variants
A. J. G. Simpson, J. B. Dame, F. A. Lewis, and T. F. McCutchan 41–45

Identification and properties of the 38000-M_r poly(A)-binding protein of non-polysomal messenger ribonucleoproteins of cryptobiotic gastrulae of *Artemia salina*
E. De Herdt, C. Thoen, L. Van Hove, E. Roggen, E. Piot, and H. Slegers 155–162

Response of *Tetrahymena pyriformis* to stress induced by starvation
L. Galego, I. Barahona, and C. Rodrigues-Pousada 163–171

The duck α^A globin but not the yeast actin gene is transcribed by a HeLa cell extract
R. Hörcher and K. H. Seifart 201–208

Rapid increase of calcitonin-specific mRNA after acute hypercalcemia
N. Segond, A. Jullienne, F. Lasmoles, C. Desplan, G. Milhaud, and M. S. Moukhtar 209–215

Storage protein precursor polypeptides in cotyledons of *Pisum sativum* L. Identification of, and isolation of a cDNA clone for, an 80000-M_r legumin-related polypeptide
C. Domoney and R. Casey 321–327

Dietary regulation of levels of active mRNA coding for amylase and serine protease zymogens in the rat pancreas
C. Wicker, A. Puigserver, and G. Scheele 381–387

Isolation of a novel antibody, which precipitates ribonucleoprotein complex containing threonine tRNA from a patient with polymyositis
N. Okada, R. Mukai, F. Harada, T. Kabashima, Y. Nakao, K. Yamane, Y. Ohshima, K. Sakamoto, M. Itoh, H. Kashiwagi, and H. Hamaguchi 425–429

Ribosomal RNA-protein cross-links, induced by γ-irradiation of 40S and 60S ribosomal subunits of L cells
M. Cazillis, N. Giocanti, J.-F. Houssais, and B. Ekert 439–445

Recognition by restriction endonuclease *Eco*RI of deoxyoctanucleotides containing modified sugar moieties
E. Ohtsuka, Y. Ishino, K. Ibaraki, and M. Ikehara 447–450

The 5S RNA binding protein from yeast (*Saccharomyces cerevisiae*) ribosomes. An RNA binding sequence in the carboxyl-terminal region
M. Yaguchi, C. F. Rollin, C. Roy, and R. N. Nazar 451–457

Involvement of the 3′ side of the anticodon loop of yeast $tRNA^{Tyr}$ in messenger-free binding to ribosomes. An electron-spin resonance study
I. Weygand-Duraševič, V. Nöthig-Laslo, and Ž. Kućan 541–545

Metabolism of tRNA in near-ultraviolet-illuminated *Escherichia coli*. The tRNA repair hypothesis
A. Blanchetot, E. Hajnsdorf, and A. Favre 547–552

Nascent DNA chains synthesized in reversibly permeable cells of mouse thymocytes
G. Banfalvi, A. Sooki-Toth, N. Sarkar, S. Csuzi, and F. Antoni 553–559

Biosynthesis and compartmentalization of rat-intestinal vitamin-D-dependent calcium-binding protein
W. J. Leonard, A. W. Strauss, M. F. Go, D. H. Alpers, and J. I. Gordon 561–571

Inhibition of cell proliferation by interferons. 1. Effects on cell division and DNA synthesis in human lymphoblastoid (Daudi) cells
D. R. Gewert, G. Moore, V. J. Tilleray, and M. J. Clemens 619–625

Inhibition of cell proliferation by interferons. 2. Changes in processing and stability of newly synthesized DNA in human lympho-blastoid (Daudi) cells
G. Moore, D. R. Gewert, and M. J. Clemens 627–635

Protein chemistry and structure

Alpha secondary structures generate weak but recurrent periodicity in proteins
C. Wuilmart and J. Urbain 35–40

Fluorescence-quenching studies on a conformational transition within a domain of the β_2 subunit of *Escherichia coli* tryptophan synthase
A. F. Chaffotte and M. E. Goldberg 47–50

Characterization of phospholipases A_2 of *Naja melanoleuca* snake venom modified at the N-terminal region
J. H. van Eijk, H. M. Verheij, and G. H. De Haas 51–57

Primary structure of flavocytochrome b_2 from baker's yeast. Purification by reverse-phase high-pressure liquid chromatography and sequencing of fragment α cyanogen bromide peptides
R. Ghrir, A.-M. Becam, and F. Lederer 59–74

^{1}H-NMR studies of calmodulin. The nature of the Ca^{2+}-dependent conformational change
R. E. Klevit, D. C. Dalgarno, B. A. Levine, and R. J. P. Williams 109–114

The purification and characterisation of hyaluronidase from the venom of the honey bee, *Apis mellifera*
D. M. Kemeny, N. Dalton, A. J. Lawrence, F. L. Pearce, and C. A. Vernon 217–223

The complete amino acid sequences of ribosomal proteins L17, L27, and S9 from *Bacillus stearothermophilus*
M. Kimura and C. K. Chow 225–234

Multiple forms of hepatic cytochrome P-450. Purification, characterisation and comparison of a novel clofibrate-induced isozyme with other major forms of cytochrome P-450
P. T. Tamburini, H. A. Masson, S. K. Bains, R. J. Makowski, B. Morris, and G. G. Gibson 235–246

Synthesis, modification and structural binding of heat-shock proteins in tomato cell cultures
L. Nover and K.-D. Scharf 303–313

Isolation, characterisation and crystallization of deoxyribonuclease I from bovine and rat parotid gland and its interaction with rabbit skeletal muscle actin
V. Kreuder, J. Dieckhoff, M. Sittig, and H. G. Mannherz 389–400

Subunit structure and assembly of the globular domain of basement-membrane collagen type IV
S. Weber, J. Engel, H. Wiedemann, R. W. Glanville, and R. Timpl 401–410

Comparison of the tryptic digestion pattern of subfragments 1 from V1 and V3 rat cardiac isomyosins
A.-M. Lompré, K.-K. Han, P. Bouveret, C. Richard, and K. Schwartz 459–465

Homology between the primary structures of the major bovine β-crystallin chains
G. A. M. Berbers, W. A. Hoekman, H. Bloemendal, W. W. de Jong, T. Kleinschmidt, and G. Braunitzer 467–479

The structure of the B subunit of calcineurin
A. Aitken, C. B. Klee, and P. Cohen 663–671

Enzymology

Metalloproteinase inhibitors from bovine cartilage and body fluids
R. A. D. Bunning, G. Murphy, S. Kumar, P. Phillips, and J. J. Reynolds 75–80

Presence of poly(ADP-ribose)polymerase and poly(ADP-ribose)glycohydrolase in the dinoflagellate *Crypthecodinium cohnii*
E. Werner, S. Sohst, F. Gropp, D. Simon, H. Wagner, and H. Kröger 81–86

Adenine nucleotides affect the binding of 3-phosphoglycerate to pig muscle 3-phosphoglycerate kinase
M. Vas and J. Batke 115–123

Inactivation of pig muscle 3-phosphoglycerate kinase by thiol modification depends on reagent size
K. Dékány and M. Vas 125–130

Characterization of inhibitor A, a protease from *Bacillus thuringiensis* which degrades attacins and cecropins, two classes of antibacterial proteins in insects
G. Dalhammar and H. Steiner 247–252

Novel properties of human monocyte plasminogen activator
R. W. Stephens and J. P. Golder 253–258

Purification and properties of cinnamoyl-CoA reductase and cinnamyl alcohol dehydrogenase from poplar stems (*Populus* X *euramericana*)
F. Sarni, C. Grand, and A. M. Boudet 259–265

Differences in the structural requirements for selective interaction with neutral metalloendopeptidase (enkephalinase) or angiotensin-converting enzyme. Molecular investigation by use of new thiol inhibitors
M.-C. Fournie-Zaluski, E. Lucas, G. Waksman, and B. P. Roques 267–274

Subcellular distribution of particle-bound neutral peptidases capable of hydrolyzing gonadoliberin, thyroliberin, enkephalin and substance P
B. Horsthemke, P. Leblanc, C. Kordon, S. Wattiaux-De Coninck, R. Wattiaux, and K. Bauer 315–320

Pyruvate carboxylase from *Aspergillus nidulans*. Effects of regulatory modifiers on the structure of the enzyme
S. A. Osmani, F. Mayer, F. A. O. Marston, I. P. Selmes, and M. C. Scrutton 509–518

Catalytic significance of binary enzyme-aldehyde complexes in the liver alcohol dehydrogenase reaction
P. Andersson, J. Kvassman, B. Oldén, and G. Pettersson 519–527

Comparison of effects of inhibitors on adenosine triphosphatase and adenosine diphosphatase activities in rat-liver mitochondria
D. J. Montague, T. J. Peters, and H. Baum 529–534

Methionine sulfoxide formation: the cause of self-inactivation of reticulocyte lipoxygenase
S. Rapoport, B. Härtel, and G. Hausdorf 573–576

The mechanism of inactivation of lipoxygenases by acetylenic fatty acids
H. Kühn, H.-G. Holzhütter, T. Schewe, C. Hiebsch, and S. M. Rapoport 577–583

Steady-state kinetics of horse-liver alcohol dehydrogenase with a covalently bound coenzyme analogue
J. Kovář, K. Šimek †, I. Kučera, and L. Matyska 585–591

The importance of monopole-monopole and monopole-dipole interactions on the binding of NADPH and NADPH analogues to *p*-hydroxybenzoate hydroxylase from *Pseudomonas fluorescens*. Effects of pH and ionic strength
R. A. Wijnands, J. van der Zee, J. W. van Leeuwen, W. J. H. van Berkel, and F. Müller 637–644

Carbohydrates, lipids and other natural products

Solubilization of mannosyltransferase activities for the biosynthesis of mammary glycoproteins. Elongation of tetrasaccharide-lipid to heptasaccharide-lipid by a solubilized enzyme preparation
C. Prakash, A. Katial, M. S. Kang, and I. K. Vijay 87– 93

Ornithine-containing lipids in *Thiobacillus* A2 and *Achromobacter* sp.
O. W. Thiele, J. Oulevey, and D. H. Hunneman 131–135

Separation and analysis of novel polyunsaturated mycolic acids from a psychrophilic, acid-fast bacterium, *Gordona aurantiaca*
I. Tomiyasu and I. Yano 173–180

The *Shigella flexneri* O-antigenic polysaccharide chain. Nature of the biological repeating unit
N. I. A. Carlin, A. A. Lindberg, K. Bock, and D. R. Bundle 189–194

Structure of the O-chain of the phenol-phase soluble cellular lipopolysaccharide of *Yersinia enterocolitica* serotype O:9
M. Caroff, D. R. Bundle, and M. B. Perry 195–200

Structure of the major oligosaccharides in the fusion glycoprotein of Newcastle disease virus
S. Diabaté, R. Geyer, and S. Stirm 329–336

Primary structure of *N*-glycosidically linked asialoglycans of secretory immunoglobulins A from human milk
A. Pierce-Cretel, H. Debray, J. Montreuil, G. Spik, H. Van Halbeek, J. H. G. M. Mutsaers, and J. F. G. Vliegenthart 337–349

Derivatives of methanopterin, a coenzyme involved in methanogenesis
P. Van Beelen, J. F. A. Labro, J. T. Keltjens, W. J. Geerts, G. D. Vogels, W. H. Laarhoven, W. Guijt, and C. A. G. Haasnoot 359–365

Functional association of a lysophosphatidylcholine acyltransferase and the oleoylglycerophosphocholine desaturase in microsomes from developing leaves
D. J. Murphy, K. D. Mukherjee, and I. E. Woodrow 373–379

Physical biochemistry

Raman spectroscopy and normal vibrations of peptides. Characteristic normal modes of a type-II β turn
P. Lagant, G. Vergoten, G. Fleury, and M.-H. Loucheux-Lefebvre 137–148

Vibrational normal modes of folded prolyl-containing peptides. Application to β turns
P. Lagant, G. Vergoten, G. Fleury, and M.-H. Loucheux-Lefebvre 149–154

Kinetics of conformational changes in melittin. A circular-dichroic stopped-flow study
C. Salerno, C. Crifò, and R. Strom 275–278

Membranes and bioenergetics

The platelet-fibrinogen interaction. Evidence for proximity of the Aα chain of fibrinogen to platelet membrane glycoproteins IIb/III
G. A. Marguerie, N. Thomas-Maison, M. H. Ginsberg, and E. F. Plow 5– 11

Reactivity of the sulphydryl groups of the mitochondrial phosphate carrier
E. Ligeti and A. Fonyó 279–285

Labelling and cross-linking of *Escherichia coli* penicillin-binding proteins with bis-β-lactam antibiotics
A. Rodríguez-Tébar, V. Arán, and D. Vázquez 287–293

Activation of ATPase of spinach coupling factor 1. Release of tightly bound ADP from the soluble enzyme
P. A. Sherman and M. J. Wimmer 367–371

Purification and characterization of a spinach-leaf protein capable of transferring phospholipids from liposomes to mitochondria or chloroplasts
J. C. Kader, M. Julienne, and C. Vergnolle 411–416

Resolution of bovine heart cytochrome *c* oxidase into smaller complexes by controlled subunit denaturation
M. J. Corbley and A. Azzi 535–540

Changes in membrane-associated proteins during sporulation in *Bacillus subtilis*
H. J. Rhaese, A. Reichenbach, and G. Stamminger 593–603

Topological location of diamine oxidase in the transverse plane of rabbit liver microsomal membranes
M. P. Argento-Cerú, A. M. Bargagli, and C. Sartori 645–649

Differentiation of receptor sites for [^{3}H]nitrendipine in chick hearts and physiological relation to the slow Ca^{2+} channel and to excitation-contraction coupling
J.-F. Renaud, T. Kazazoglou, A. Schmid, G. Romey, and M. Lazdunski 673–681

Cellular biochemistry and metabolism

Favism: a hemolytic disease associated with increased superoxide dismutase and decreased glutathione peroxidase activities in red blood cells
I. Mavelli, M. R. Ciriolo, L. Rossi, T. Meloni, G. Forteleoni, A. De Flora, U. Benatti, A. Morelli, and G. Rotilio 13–18

Short-term control of mitochondrial adenine nucleotide translocator by thyroid hormone
J. Mowbray and J. Corrigall 95–99

Accounting for the ATP-consuming processes in rabbit reticulocytes
W. Siems, W. Dubiel, R. Dumdey, M. Müller, and S. M. Rapoport 101–107

Molecular identification of receptors for vasoactive intestinal peptide in rat intestinal epithelium by covalent cross-linking. Evidence for two classes of binding sites with different structural and functional properties
M. Laburthe, B. Breant, and C. Rouyer-Fessard 181–187

Calmodulin activates bovine-cardiac myosin light-chain kinase by increasing the affinity for myosin light-chain 2
M. Zimmer, C. Göbel, and F. Hofmann 295–301

The effect of retinoic acid on cyclic-AMP-binding proteins in mouse melanoma cells
S. Rogelj, B. Loewy, and R. M. Niles 351–357

Isolation and localization of phosphoprotein pp135 in the nucleoli of various cell lines
J. Pfeifle and F. A. Anderer 417–424

Acyltransferase-catalyzed cleavage of arachidonic acid from phospholipids and transfer to lysophosphatides in macrophages derived from bone marrow. Comparison of different donor- and acceptor substrate combinations
I. Flesch, B. Ecker, and E. Ferber 431–437

Specific changes in lactate levels, lactate dehydrogenase patterns and cytochrome b_{559} in *Dictystelium discoideum* caused by queuine
E. Schachner, H.-J. Aschhoff, and H. Kersten 481–487

Isolation and characterization of a precursor form of lysosomal α-glucosidase from human urine
R. P. J. Oude Elferink, E. M. Brouwer-Kelder, I. Surya, A. Strijland, M. Kroos, A. J. J. Reuser, and J. M. Tager 489–495

Use of a monoclonal antibody to distinguish between precursor and mature forms of human lysosomal α-glucosidase
R. P. J. Oude Elferink, A. Strijland, I. Surya, E. M. Brouwer-Kelder, M. Kroos, J. Hilkens, J. Hilgers, A. J. J. Reuser, and J. M. Tager 497–502

Cyclic changes of the rate of phospholipid synthesis during synchronous growth of *Escherichia coli*
D. Joseleau-Petit, F. Kepes, and A. Kepes 605–611

Purification of chick nuclear thyroid-hormone-receptor protein
J. F. Heintz, L. B. Carew, A. Murnane, and R. L. Heintz 613–617

Isolation and characterization of a mutant from *Saccharomyces cerevisiae* lacking fructose 1,6-bisphosphatase
C. Gancedo and M. A. Delgado 651–655

Specific binding of human fibrinogen to cultured human fibroblasts. Evidence for the involvement of the E domain
E. Dejana, M. Vergara-Dauden, G. Balconi, A. Pietra, G. Cherel, M. B. Donati, M.-J. Larrieu, and G. Marguerie 657–662

Developmental biochemistry and immunology

Monoclonal antibodies against placental-like and intestinal-like alkaline phosphatases in a malignant human cell line
L. K. Wray and H. Harris 503–508

Indexed in Current Contents